



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

October 29, 2013

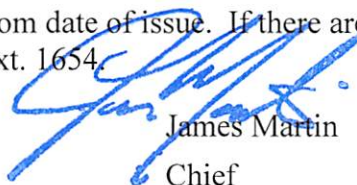
WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-100413, issued to SENECA-UPSHUR PETROLEUM, LLC, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalties being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.



James Martin
Chief

Operator's Well No: MCDANIEL #2 (2-S-184-CH)
Farm Name: WENTZ, WILLIAM H. & EDITH M
API Well Number: 47-100413
Permit Type: Plugging
Date Issued: 10/29/2013

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
3. Well work activities shall not constitute a hazard to the safety of persons.

WW-4B
Rev. 2/01

1) Date 9/12, 20 13
2) Operator's
Well No. McDaniel #2
3) API Well No. 47-001 - 00413

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil ____ / Gas X / Liquid injection ____ / Waste disposal ____ /
(If "Gas, Production X or Underground storage ____) Deep ____ / Shallow X

5) Location: Elevation 1530' Watershed Stewarts Run
District Elk 03 County Barbour 01 Quadrangle Phillipi 7.5' 545

6) Well Operator Seneca-Upshur Petroleum, LLC
PDC Mountaineer LLC
Address 120 Genesis Blvd
Bridgeport WV 26330

7) Designated Agent Jamie Haga
Address 120 Genesis Blvd
Bridgeport WV 26330

8) Oil and Gas Inspector to be notified
Name Bryan Harris
Address P.O Box 157
Volga WV 26238

9) Plugging Contractor
Name Hydrocarbon Well Service
Address Drawer 995
Buckhannon WV 26201

10) Work Order: The work order for the manner of plugging this well is as follows:

Check TD. Load hole with gel set cement plug from 4434' to 4031'. Sever 4.5"
at free point. Set cement plug from 50' below sever to 50' above. If 8 5/8" is not CTS will sever at free point,
If severed will set cement plug 50' below to 50' above sever.
Set cement plug from 200' to surface. Install monument

Set plug 1580' - 1480'

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OCT 10 2013
Office of Oil and Gas
Environmental Protection

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector

Bryan Harris

Date

10-3-13



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION /

WELL RECORD

Rotary ☒
Spudder ☐
Cable Tools ☐
Storage ☐

Quadrangle PhilippiPermit No. BAR - 413Oil or Gas Well Gas

(KIND)

Company Union Drilling, Inc.
Address Box 345, Buckhannon, W. Va., 26201
Farm Frank A. McDaniel Acres 122+
Location (waters) Stewarts Run
Well No. (2) 184-CH Elev. 1530'
District Elk County Barbour
The surface of tract is owned in fee by Frank A. McDaniel
Stewarts Run Address Philippi, W. Va.
Mineral rights are owned by Frank A. McDaniel
Stewarts Run Address Philippi, W. Va.
Drilling commenced October 31, 1968
Drilling completed November 7, 1968
Date Shot From To
With

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			Kind of Packer
16			
13	18'	18'	
10			Size of
8 5/8"	1103'	1103'	
6 3/4"			Depth set
5 3/16"			
4 1/2"	4488'	4488'	
3			Perf. top 1131
2			Perf. bottom 4135
Liners Used			Perf. top 4420
			Perf. bottom 4424

Open Flow /10ths Water in Inch
/10ths Merc. in Inch
Volume Riley, 10,000 - Benson, 176,000 Cu. Ft.
Rock Pressure lbs. hrs.
Oil bbls., 1st 24 hrs.

Attach copy of cementing record.
CASING CEMENTED 1 1/2" SIZE 1125 No. Ft. 11/7/68 Date
Amount of cement used (bags) 225
Name of Service Co. Halliburton Company
COAL WAS ENCOUNTERED AT FEET INCHES
FEET INCHES FEET INCHES
FEET INCHES FEET INCHES

WELL ACIDIZED (DETAILS)

WELL FRACTURED (DETAILS) 11/20/68-Dowell-2 Stage - 1st Stage: 41,250 Gal. Waterfrac
2nd Stage: 27,500 Gal. Waterfrac - 95,000 Lbs. Sand

RESULT AFTER TREATMENT (Initial open Flow or bbls.) 1,500,000

ROCK PRESSURE AFTER TREATMENT 1275# HOURS 16

Fresh Water 110 Feet Salt Water Feet

Producing Sand Riley & Benson Depth

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Clay			0	15			
Sand			15	54			
Red Rock & Shale			54	152	Water @	110'	
Sand			152	170			
Red Rock & Shale			170	115			
Shale			115	483			
Sand			483	543			
Shale			543	579			
Sand			579	671			
Shale			671	731			
Sand			731	746			
Sand & Shale			746	858			
Sand			858	964			
Sand & Shale			964	1069			
Sand			1069	1103			
Shale			1103	1138			
Sand & Shale			1138	1178			
Sand			1178	1223			
Sand & Shale			1223	1294			
Red Rock			1294	1330			
Sand			1330	1407			
Red Rock & Shale			1407	1585			
Big Lime			1585	1689			
Injun Sand			1689	1783			
Sand & Shale			1783	1945			
Sand			1945	1974			
Sand & Shale			1974	2657			
Shale			2657	2993			
Sand & Shale			2993	3830			

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Formation	Color	Hard or Soft	Top /	Bottom	Oil, Gas or Water	Depth Found	Remarks
Shale			3830	4054			
Riley Sand			4054	4085			
Shale			4085	4405			
Benson Sand			4405	4425			
Shale			4425	4505	Total Depth		

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Office of Oil and Gas
WV Dept. of Environmental ProtectionDate December 11, 19 68APPROVED Union Drilling, Inc., OwnerBy Thomas E. Duman
(Title)

WW-4A
Revised 6-07

1) Date: 9/12/2013
2) Operator's Well Number
McDaniel #2

3) API Well No.: 47 - 001 - 00413

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL

4) Surface Owner(s) to be served:

(a) Name William & Edith Wentz
Address RT 1 Box 324
Bridgeport WV 26330

(b) Name _____
Address _____

(c) Name _____
Address _____

6) Inspector Bryan Harris
Address P.O Box 157
Volga WV 26238
Telephone 304-553-6087

5) (a) Coal Operator

Name N/A
Address _____

(b) Coal Owner(s) with Declaration

Name CoalQuest Development LLC
Address 300 Corporate Center Dr
Scott Depot WV 25560

Name _____
Address _____

(c) Coal Lessee with Declaration

Name N/A
Address _____

TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

Well Operator Senea - Upshur Petroleum, LLC

By: Jamie Haga

Its: Agent

Address 120 Genesis Blvd
Bridgeport WV 26330

Telephone 304-842-3597

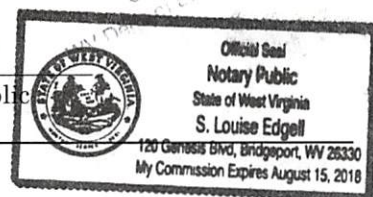
Subscribed and sworn before me this 1st day of October, 2013

My Commission Expires August 15, 2018

Notary Public

Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at depprivacyoffier@wv.gov.



100413 P

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name Seneca-Upshur Petroleum, LLC
PDC Mountaineer LLC OP Code 494494839

Watershed Stewarts Run Quadrangle Phillipi 7.5'

Elevation 1530' County Barbour District Elk

Description of anticipated Pit Waste: No Pit will use tanks (gel & cement)

Will a synthetic liner be used in the pit? n/a

Proposed Disposal Method For Treated Pit Wastes:

- ☐ Land Application
☒ Underground Injection (UIC Permit Number See Attached)
☐ Reuse (at API Number _____)
☐ Off Site Disposal (Supply form WW-9 for disposal location)
☐ Other (Explain _____)

Proposed Work For Which Pit Will Be Used:

- ☐ Drilling ☐ Swabbing
☐ Workover ☒ Plugging
☐ Other (Explain _____)

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature _____

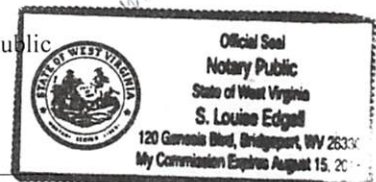
Company Official (Typed Name) Jamie Haga

Company Official Title Agent

Subscribed and sworn before me this 1st day of October, 20 13

S. Louise Edgell Notary Public

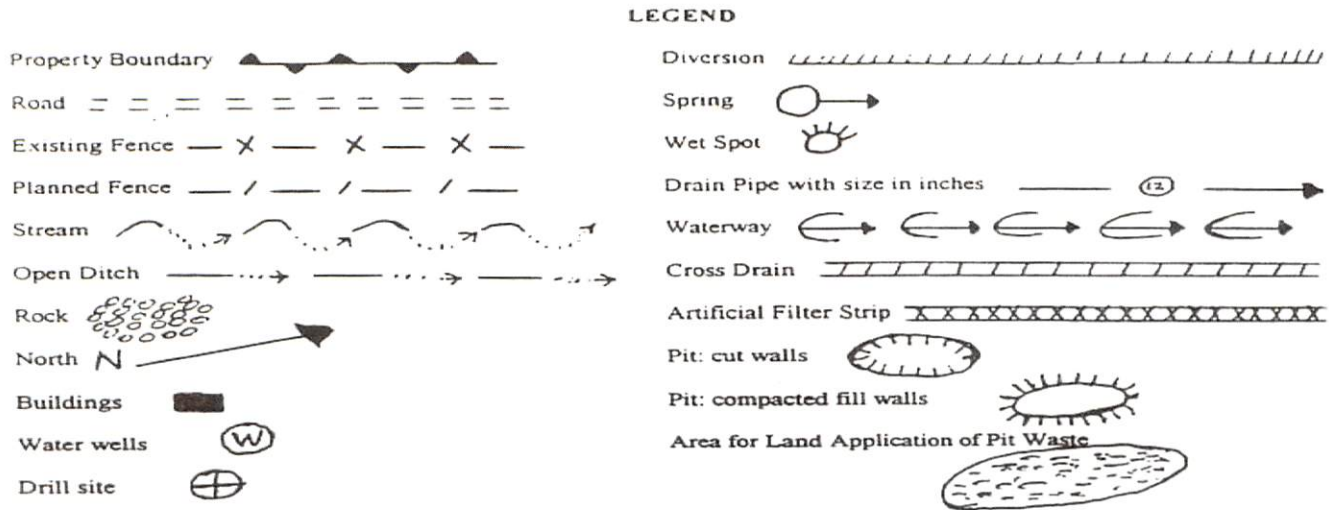
My commission expires August 15, 2015



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Proposed Revegetation Treatment: Acres Disturbed 1.5 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Timothy	40		
Orchard Grass	12		
Red Top Clover	5		

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Duane Ham

Comments: _____

Title: Oil & Gas Inspector

Date: 10-3-13

Field Reviewed? () Yes (X) No

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Office of Oil and Gas
Environmental Protection

Disposal Well Information Sheet*(Including Lat./Long. , Operator, and API #)*

DISPOSAL WELL NAME	API WELL #	STATE	COUNTY	TWP
Ohio Oil Gathering Corp. - Bells Run	34-167-2-9395	Ohio	Washington	Newport
Long Run Disposal Well	34-167-2-9658	Ohio	Washington	Newport
Newell Run Disposal Well	34-167-2-9685	Ohio	Washington	Newport

Operator: Ohio Oil Gathering Corp.

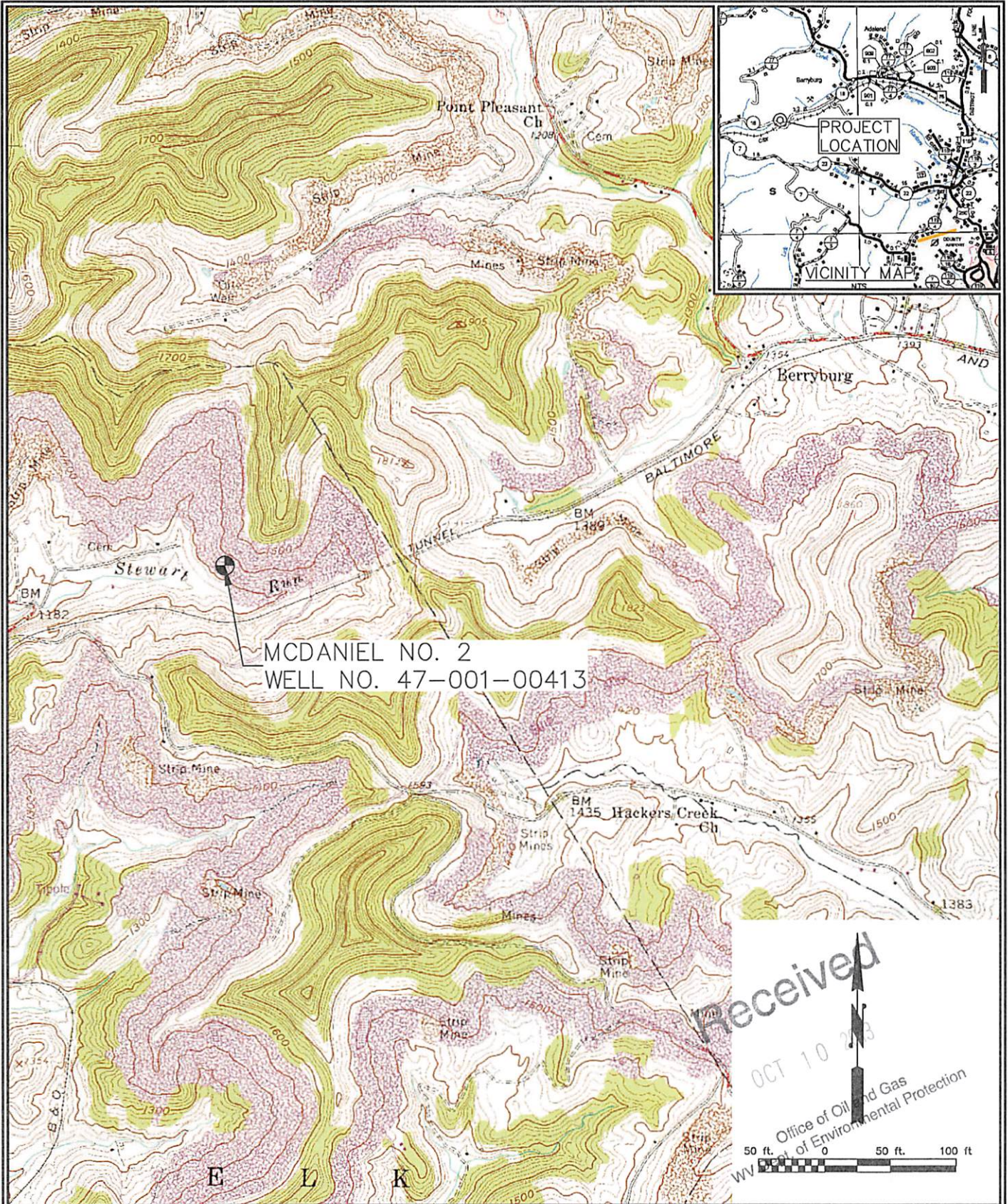
DISPOSAL WELL NAME	API WELL #	STATE	COUNTY	TWP
BW # 4	47-073-02523	WV	Pleasants	
Greens Run	47-073-02540	WV	Pleasants	

Operator: Appalachian Oil Purchasers

Coordinates	Lat /Long
Ohio Oil Gathering Corp. -Bells Run	39.387 N, -81.289 W
Long Run Disposal Well	39.391 N, -81.317 W
Newell Run Disposal Well	39.399 N, -81.273 W
BW# 4	39 22'20.55 N, -81 14'47.70"
Greens Run	

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 WV Dept. of Environmental Protection

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CAD FILE: R:\030-2384-PDC-6 Plate For Plugging\Drawing\MCDaniel_g2\MCDaniel2-Cover.dwg PLOT DATE/TIME: 9/24/2013 5:05 PM



PDC MOUNTAINEER

THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAKS BOULEVARD - BRIDGEPORT, WV 26330
PHONE: 304-624-4108
FAX: 304-624-7831

PDC MOUNTAINEER, LLC
WELL PLUGGING PLAN FOR
MCDANIEL NO. 2
BARBOUR COUNTY, WV

SHEET NO.

1

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VICINITY MAP - PHILLIPPI, WV 7.5' QUAD

WW-7
8-30-06



West Virginia Department of Environmental Protection
Office of Oil and Gas

WELL LOCATION FORM: GPS

API: 47-001-00413 WELL NO.: McDaniel 2
FARM NAME: Wentz
RESPONSIBLE PARTY NAME: Seneca Upshur Petroleum LLC
COUNTY: Barbour DISTRICT: Elk
QUADRANGLE: Phillipi 7.5'
SURFACE OWNER: William & Edith Wentz
ROYALTY OWNER: McDaniel Heirs
UTM GPS NORTHING: 4338359.797
UTM GPS EASTING: 576610.303 GPS ELEVATION: 1530

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS x : Post Processed Differential 0.02M

Real-Time Differential 0.02M

Mapping Grade GPS : Post Processed Differential

Real-Time Differential

4. Letter size copy of the topography map showing the well location.

I the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

Signature

Title

Date

Received

OCT 21 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

PDC MOUNTAINEER, LLC.
WELL NO. McDANIEL No. 2

NOTES:

-PLAT ORIENTATION, CORNERS, AND WELL REFERENCES ARE BASED UPON THE GRID NORTH MERIDIAN FOR THE WV STATE PLANE COORDINATE SYSTEM, NORTH ZONE NAD 83. WELL LOCATION REFERENCE TIES ARE BASED UPON THE MAGNETIC MERIDIAN.

LATITUDE 39° 12' 30"

-THERE ARE NO WATER WELLS LOCATED WITHIN 250' OF WELL 2.

USER: knoth

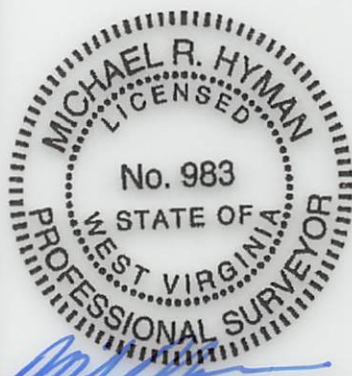
LAYOUT: McDANIEL

PLOT DATE/TIME: 8/28/2013 - 3:17pm

CAD FILE: R:\030-2384 PDC- 6 Plats for Plugging\Survey\WV-N PLUGGING PLATS.dwg

TOP 6,305' HOLE

LONGITUDE 80° 05' 00"



Michael R. Hyman, P.S. 983

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

TH

DENOTES LOCATION OF
WELL ON UNITED STATES
TOPOGRAPHIC MAP⊙ = MONUMENT FOUND
IRON REBAR UNLESS
NOTED OTHERWISE.

LEASE BOUNDARY

WELL NO. 2
TOP HOLE
STATE PLANE COORDINATES
(NAD 83 NORTH ZONE)N: 252315.2770
E: 1794789.8570
LAT: 39°11'28.0088"
LON: 80°06'46.3897"UTM COORDINATES
(NAD 83-METER)
N: 4338359.797
E: 576610.303

REFERENCES

1"=400'

N68°02'35"E 143.44'
12" B.J. OAK
N15°09'19"E 134.05'
40" POPLAR

FILE NO. X

SCALE: 1"=1000'

MINIMUM DEGREE OF
ACCURACY: 1 in 2500PROVEN SOURCE OF ELEVATION:
OPUS SURVEY GRADE GPSSTATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL & GAS

DATE AUGUST 28, 2013

OPERATOR'S WELL NO. McDANIEL No. 2

API WELL NO.

47 - 001 - 00413 P
STATE COUNTY PERMITWELL TYPE: OIL ☐ GAS ☒ LIQUID INJECTION ☐ WASTE DISPOSAL ☐ (IF "GAS"), PRODUCTION ☒ STORAGE ☐ DEEP ☐ SHALLOW ☒

LOCATION: ELEVATION: 1530 WATER SHED: _____

DISTRICT: ELK COUNTY: BARBOUR

QUADRANGLE: PHILLIPI 7.5' ACREAGE: 122 AC±

SURFACE OWNER: WILLIAM H. & EDITH M. WENTZ. LEASE ACREAGE: 122 AC±

OIL & GAS ROYALTY OWNER: FRANK A. McDANIEL LEASE NO. _____

PROPOSED WORK: DRILL ☐ CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☐PERFORATE NEW FORMATION ☐ PLUG OFF OLD FORMATION ☒ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____PLUG AND ABANDON ☒ CLEAN OUT AND REPLUG _____

TARGET FORMATION: BENSON ESTIMATED DEPTH: 4,505

WELL OPERATOR: SENECA-UPSHUR PETROLEUM, LLC PDC MOUNTAINEER, LLC.

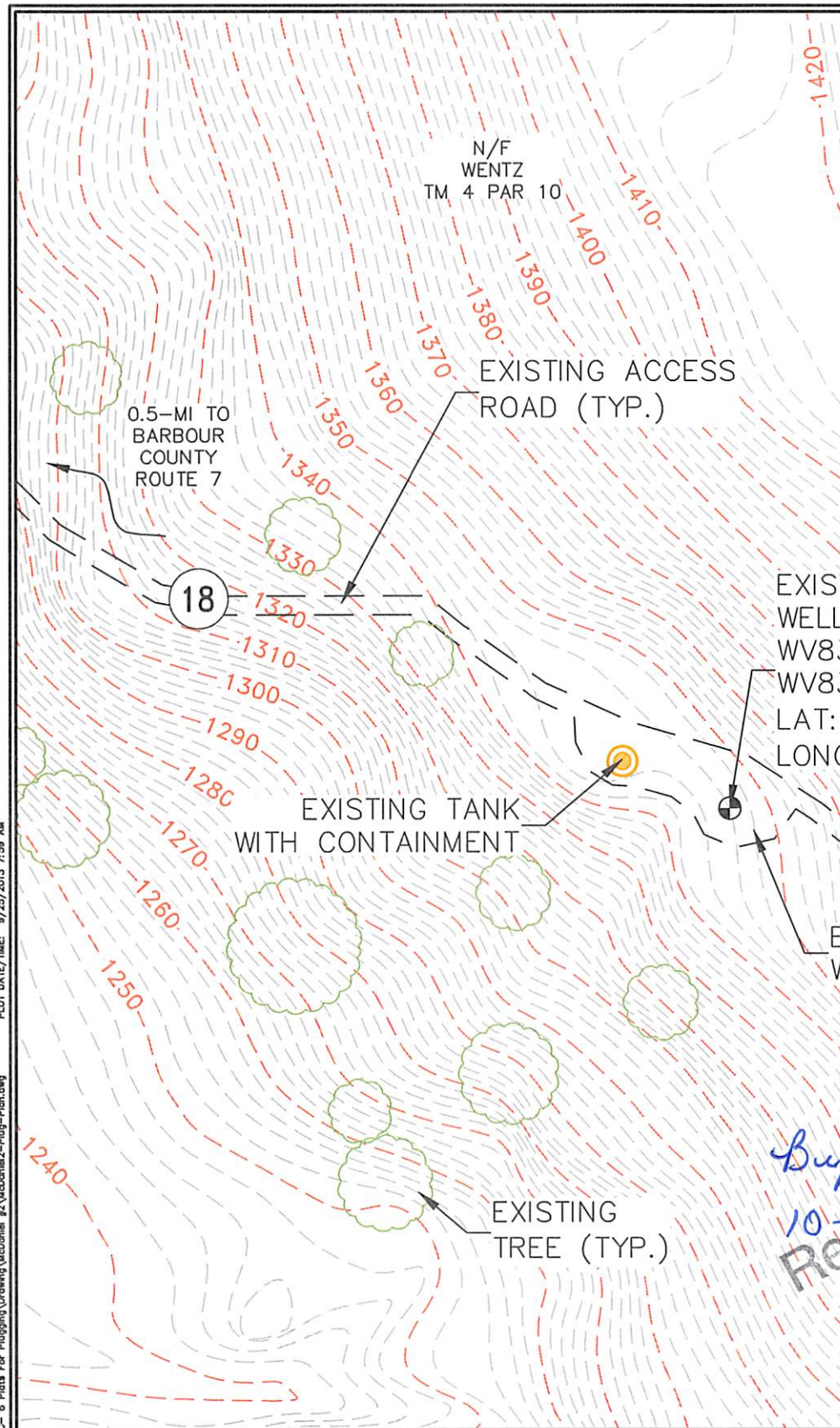
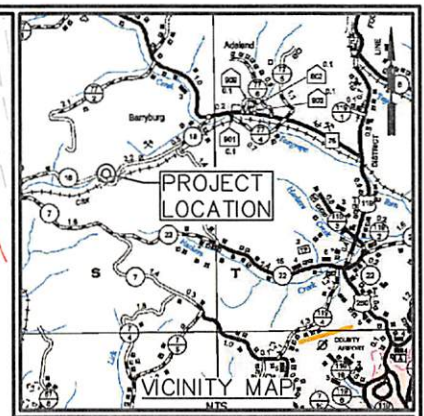
DESIGNATED AGENT: JAMIE HAGA

ADDRESS: 120 GENESIS BOULEVARD
BRIDGEPORT, WV 26330ADDRESS: 120 GENESIS BOULEVARD
BRIDGEPORT, WV 26330

THRASHER

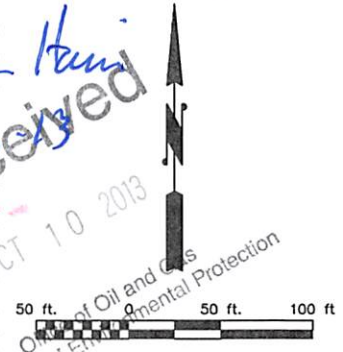
THE THRASHER GROUP, INC.
30 COLUMBIA BLVD.
CLARKSBURG, WV 26301
PHONE 304-624-4108

10043F



EXISTING MCDANIEL NO. 2
WELL NO. 47-001-00413
WV83-NF N: 252315.277
WV83-NF E: 1794789.857
LAT: N 39° 11' 28.0088"
LONG: W 80° 06' 46.3897"

Buyer Harris
10-3-13
Received
OCT 10 2013
Dept. of Oil and Gas
Dept. of Environmental Protection



THRASHER
THE THRASHER GROUP, INC.
600 WHITE OAKS BOULEVARD - BRIDGEPORT, WV 26330
PHONE: 304-624-4108
FAX: 304-624-7831

PDC MOUNTAINEER, LLC
WELL PLUGGING PLAN FOR
MCDANIEL NO. 2
BARBOUR COUNTY, WV

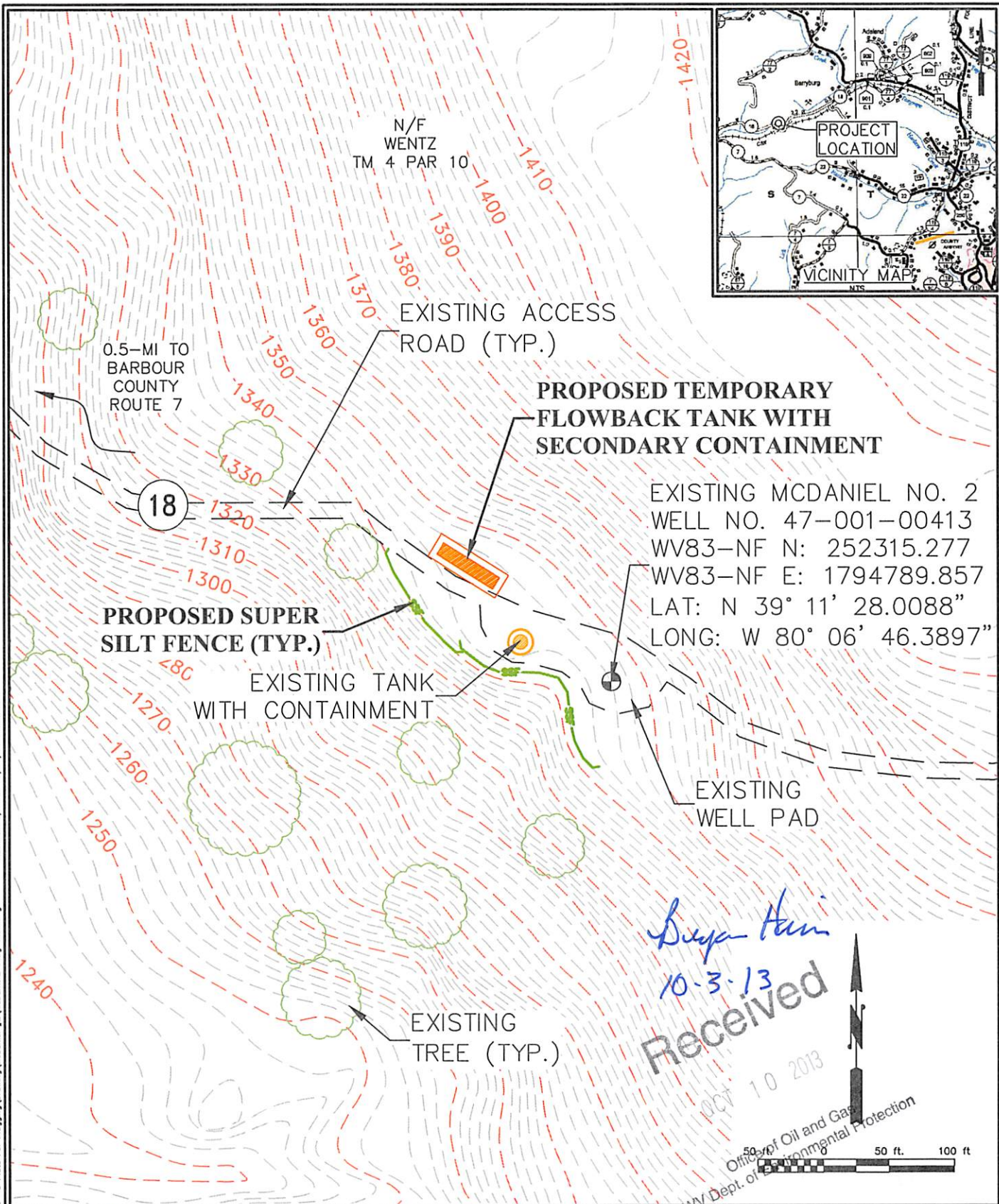
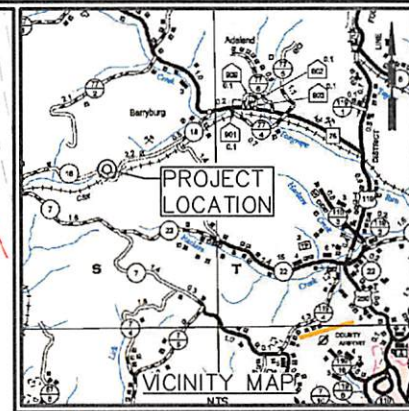
SHEET NO.
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EXISTING CONDITIONS

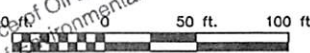
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CAD FILE: R:\030-2304 PDC- 6 Plots For Plugging\Drawing\McDaniel #2\McDaniel2-Plug-Plan.dwg

100413P



Danya Harris
10-3-13
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Office of Oil and Gas
WV Dept. of Environmental Protection



PDC MOUNTAINEER

THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAKS BOULEVARD - BRIDGEPORT, WV 26330
PHONE: 304-624-4108
FAX: 304-624-7831

PDC MOUNTAINEER, LLC
WELL PLUGGING PLAN FOR
MCDANIEL NO. 2
BARBOUR COUNTY, WV

SHEET NO.

3

PROPOSED PLUGGING SITE PLAN

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CAD FILE: R:\030-2384 PDC- 6 Plots For Plugging\Drawing\Mcdaniel #2\Mcdaniel2-Plug-Plan.dwg PLOT DATE/TIME: 9/25/2013 7:59 AM

100413P

EROSION AND SEDIMENT CONTROL NOTES**SEEDING AND MULCHING**

1. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED.
2. WHERE THE INITIATION OF STABILIZATION MEASURES WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS CONDITIONS ALLOW.
3. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 14 DAYS FROM WHEN ACTIVITIES CEASED, (E.G., THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY HALTED IS LESS THAN 14 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED. SEEDBED PREPARATION: AREAS TO BE SEEDBED SHALL BE FREE OF ROCKS AND STONES, DISKED TO A DEPTH OF 4-IN TO 6-IN, AND SMOOTHLY GRADED.
4. SEEDBED PREPARATION: AREAS TO BE SEEDBED SHALL BE FREE OF ROCKS AND STONES, DISKED TO A DEPTH OF 4-IN TO 6-IN, AND SMOOTHLY GRADED.
5. SEEDING METHOD: SEED MAY BE BROADCAST BY HYDROSEEDER OR MANUALLY AS FOLLOWS: BY HAND WITH A CYCLONE SEEDER, OR FERTILIZER SPREADER. IF A MANUAL METHOD IS USED, DIVIDE THE SEED INTO TWO LOTS AND BROADCAST THE SECOND PERPENDICULAR TO THE FIRST.
6. AREAS WHERE THE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70%) WITHIN 30 DAYS AFTER SEEDING AND MULCHING MUST BE RE-SEEDING IMMEDIATELY, OR AS SOON AS WEATHER CONDITIONS ALLOW.
7. TEMPORARY AND PERMANENT SEED MIXTURES SHALL BE FOSTER SUPPLY PREMIUM MEADOW MIX (OR APPROVED EQUAL).
8. SEED APPLICATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.
9. MULCH SHALL BE APPLIED AT A RATE OF 3-4 TONS PER ACRE.
10. LIME APPLICATION RATES
 - 10.1. WHEN A SOIL TEST REQUIRES LIME APPLICATION OF MORE THAN 4 TONS PER ACRE, THE LIME MUST BE MIXED INTO THE TOP SIX (6) INCHES OF SOIL.
 - 10.2. MINIMUM 6 TONS PER ACRE AT 100% EFFECTIVE NEUTRALIZING VALUE (% ENV), UNLESS THE SOIL TEST DETERMINES A LESSER AMOUNT IS NEEDED. TO DETERMINE THE ACTUAL AMOUNT OF REGULAR LIME TO APPLY, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE % ENV FOR THE PRODUCT USED. FOR EXAMPLE, IF 6 TONS PER ACRE IS NEEDED AND THE % ENV FOR THE LIME USED IS 88%, DIVIDE 6 BY 0.88 RESULTING IN 6.8 TONS NEEDED TO BE APPLIED.
 - 10.3. FOR DOLOMITIC LIME, WHICH HAS A SIGNIFICANT AMOUNT OF MAGNESIUM IN IT, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE % CALCIUM CARBONATE EQUIVALENT (% CCE) LISTED FOR THE PRODUCT INSTEAD OF THE % ENV. THE % CCE MAY BE ABOVE 100% WHICH ACCOUNTS FOR THE FACT THAT MAGNESIUM HAS A GREATER EFFECT PER POUND THAN THE CALCIUM IN REGULAR LIME.
11. FERTILIZATION RATES
 - 11.1. IF TOP DRESSED APPLY 10-20-20 AT 600 POUNDS/ACRE
 - 11.2. IF INCORPORATED APPLY 10-20-20 AT 1,000 POUNDS/ACRE
 - 11.3. UNLESS THE SOIL TEST DETERMINES THAT THE RATE CAN BE LESS THAN THESE MINIMUMS.

CONSTRUCTION NOTES

1. CONTRACTOR SHALL INSTALL ALL REQUIRED SUPER SILT FENCE, SILT FENCE, AND/OR COMPOST FILTER SOCK BARRIERS AS SHOWN ON THE PLANS AND AS DIRECTED. ALL SUPER SILT FENCE, SILT FENCE, AND COMPOST FILTER SOCKS ARE TO BE INSTALLED PARALLEL TO THE EXISTING CONTOURS.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE WVDEP OFFICE OF OIL AND GAS "WV E&S CONTROL FIELD MANUAL".

MAINTENANCE AND INSPECTION NOTES

1. CONTRACTOR SHALL CLEAN OUT SEDIMENT BEHIND THE SUPER SILT FENCE, SILT FENCE, AND/OR COMPOST FILTER SOCKS ONCE IT IS ONE THIRD OF THE HEIGHT OF THE FENCE AND/OR SOCK. THE SEDIMENT SHALL BE INCORPORATED INTO THE FILL WITHIN THE DISTURBED AREA.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED, AT MINIMUM, ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER ANY STORM EVENT GREATER THAN 0.5-INCHES PER 24-HOUR PERIOD. ANY REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE IMMEDIATELY.

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL PLAN AND ELEVATION DIMENSIONS OF THE VARIOUS WORK ITEMS ON THIS PROJECT.
2. THE BASE MAPPING FOR THIS PROJECT IS BASED ON DIGITAL USGS QUAD MAP CONTOURS. THE DATUM IS NAD83 WEST VIRGINIA STATE PLANES, NORTH ZONE, US FOOT.
3. THE CONTRACTOR SHALL LOCATE AND PROTECT EXISTING UTILITIES AND FACILITIES FROM DAMAGE BY EQUIPMENT OR PERSONNEL. THE CONTRACTOR SHALL CONTACT ALL UTILITY AND FACILITY AGENCIES FOR FIELD MARKING PRIOR TO BEGINNING CONSTRUCTION. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE EXISTING UTILITY INFORMATION IS THE BEST AVAILABLE AND MAY NOT BE COMPLETELY ACCURATE OR REPRESENTATIVE OF ACTUAL CONDITIONS. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR OWNER IN WRITING, OF ANY EXISTING DAMAGED UTILITIES PRIOR TO BEGINNING CONSTRUCTION. ANY UTILITIES OR FACILITIES DAMAGED DURING THE PROJECT BY THE CONTRACTOR OR EQUIPMENT SHALL BE PROMPTLY REPAIRED AT THE CONTRACTOR'S EXPENSE. HAND DIGGING TO PROTECT UTILITIES FROM DAMAGE SHOULD BE ANTICIPATED.
4. ALL DISTURBED AREAS SHALL BE RESTORED TO A SMOOTH LINE AND GRADE WITH POSITIVE DRAINAGE. THE CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS.
5. THE CONTRACTOR SHALL PROVIDE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND OTHER ACTIONS AS REQUIRED BY LOCAL AND STATE REGULATIONS OR REQUESTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OR MODIFYING EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ORDER TO PREVENT EROSION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH "WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL", AVAILABLE AT: <http://www.dep.wv.gov/oil-and-gas/Documents/Erosion%20Manual%2004.pdf>
6. EVERY LOCATION WHERE SUPER SILT FENCE IS PROPOSED TO BE INSTALLED, THE CONTRACTOR MAY INSTALL COMPOST FILTER SOCK AS AN APPROVED EQUAL. THE COMPARABLE COMPOST FILTER SOCK SIZE SHALL BE DETERMINED IN THE FIELD (BASED UPON THE CHART PROVIDED IN DETAILS) AND SHALL BE BASED ON THE MAXIMUM SLOPE LENGTH ABOVE THE COMPOST FILTER SOCK. ADDITIONAL ROWS OF COMPOST FILTER SOCK MAY BE NECESSARY COMPARED TO THE SUPER SILT FENCE.

SEQUENCE OF WORK

1. INSTALL ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AND MAINTAIN FOR THE LIFE OF THE PROJECT OR UNTIL THERE IS 70% GROWTH ESTABLISHED OVER THE ENTIRE PROJECT AREA.
2. INSTALL PROPOSED TEMPORARY FLOWBACK TANK WITH SECONDARY CONTAINMENT.
3. BEGIN WELL PLUGGING OPERATIONS.
4. REMOVE UNNECESSARY EQUIPMENT.
5. COMPLETE WELL PLUGGING.
6. REMOVE TEMPORARY FLOWBACK TANK.
7. RESTORE SITE TO EXISTING CONDITIONS.
8. SEED AND MULCH ALL DISTURBED AREAS.
9. REMOVE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AFTER 70% GROWTH HAS BEEN ESTABLISHED OVER THE ENTIRE PROJECT AREA.
10. COMPLETE FINAL PROJECT CLEAN UP.

CONTACTS

MISS UTILITY 1-800-245-4848 http://www.wv811.com	NATIONAL RESPONSE CENTER FOR REPORTING CHEMICAL OR OIL SPILLS 1-800-424-8802
AMBULANCE, FIRE, LAW ENFORCEMENT 911	STATE EMERGENCY SPILL NOTIFICATION 1-800-642-3074
PDC MOUNTAINEER, LLC. JAMIE HAGA OFFICE: 304-842-3597 Jamie.Haga@pdcee.com	THE THRASHER GROUP, INC. ROBERT R. MILNE, P.E. OFFICE: 304-624-4108 rmilne@thrashereng.com

**PDC MOUNTAINEER****THRASHER**

THE THRASHER GROUP, INC.
600 WHITE OAKS BOULEVARD - BRIDGEPORT, WV 26330
PHONE: 304-624-4108
FAX: 304-624-7831

PDC MOUNTAINEER, LLC
WELL PLUGGING PLAN FOR
MCDANIEL NO. 2
BARBOUR COUNTY, WV

SHEET NO.**4**

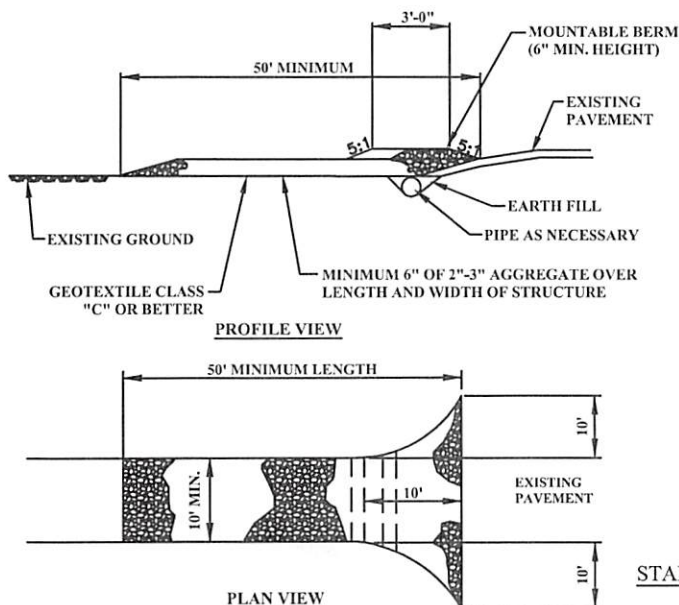
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GENERAL NOTES

Received
OCT 10 2013
Department of Oil and Gas
Environmental Protection

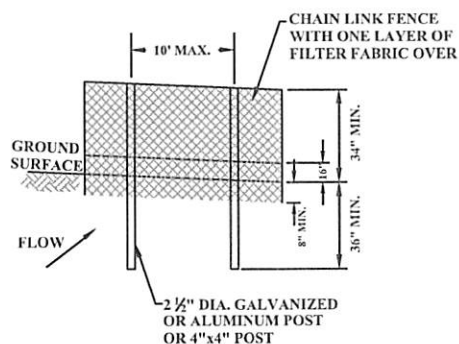
NOTES:

1. LENGTH - 50' MINIMUM (30' MINIMUM FOR SINGLE RESIDENCE LOT).
2. WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
4. STONE - CRUSHER AGGREGATE (2" - 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
5. SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE MUST BE SIZED ACCORDING TO THE DRAINAGE AND THE AMOUNT OF RUN OFF TO BE CONVEYED. A 6" DIAMETER MINIMUM WILL BE REQUIRED. WHEN THE STABILIZED CONSTRUCTION ENTRANCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY.
6. LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

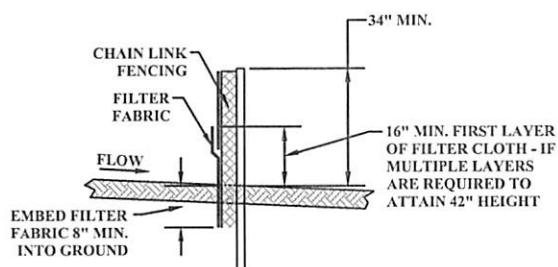


STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



ELEVATION VIEW



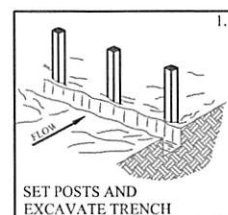
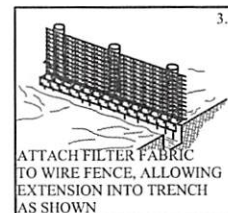
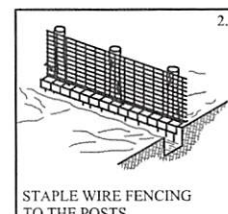
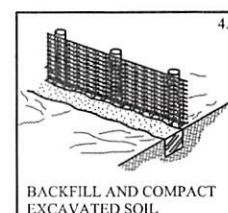
SECTION VIEW

SUPER (REINFORCED) SILT FENCE DETAIL

NOT TO SCALE

NOTES:

1. MAXIMUM 10' CENTER-TO-CENTER SPACING FOR POSTS.
2. FENCING SHALL BE 42" IN HEIGHT.
3. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
4. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID-SECTION.
5. FILTER CLOTH AND CHAIN LINK FENCE SHALL BE EMBEDDED 8" MINIMUM INTO THE GROUND.
6. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" MINIMUM AND FOLDED.
7. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.
8. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
9. ANY SECTION OF FILTER FABRIC FENCE WHICH HAVE BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED.

SET POSTS AND
EXCAVATE TRENCHATTACH FILTER FABRIC
TO WIRE FENCE, ALLOWING
EXTENSION INTO TRENCH
AS SHOWNSTAPLE WIRE FENCING
TO THE POSTSBACKFILL AND COMPACT
EXCAVATED SOILBUILDING SUPER
(REINFORCED) SILT
FENCE DETAIL

NOT TO SCALE



PDC MOUNTAINEER

THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAKS BOULEVARD - BRIDGEPORT, WV 26330
PHONE: 304-624-4108
FAX: 304-624-7821

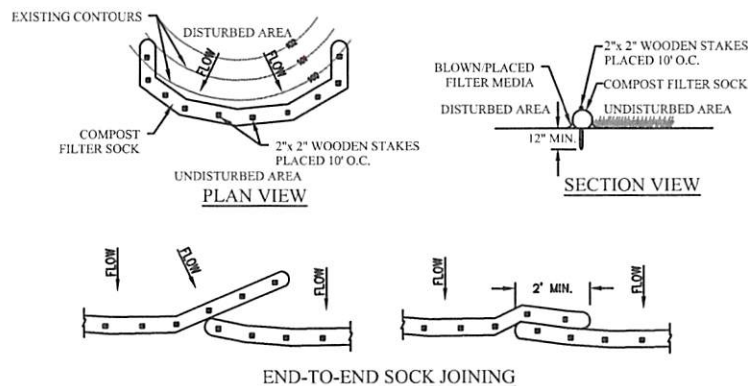
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WELL PLUGGING PLAN FOR
MCDANIEL NO. 2
BARBOUR COUNTY, WV

SHEET NO.

5

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COMPOST SHALL MEET THE FOLLOWING STANDARDS:

ORGANIC MATTER CONTENT	80% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.0
MOISTURE CONTENT	35% - 55%
PARTICLE SIZE	98% PASS THROUGH 1" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS MAXIMUM

COMPOST FILTER SOCK TO BE INSTALLED IN ACCORDANCE WITH FILTREXX MANUFACTURER SPECIFICATIONS, OR AN APPROVED EQUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8' UP SLOPE AT 45° TO THE MAIN SOCK ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY DIAMETER SOCK SHALL NOT EXCEED THAT SHOWN ON BELOW TABLE.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

SOCKS SHALL BE INSPECTED AS DESCRIBED IN THE MAINTENANCE AND INSPECTION NOTES IN THE EROSION AND SEDIMENT CONTROL NOTES OF THESE PLANS. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

BIODEGRADABLE FILTER SOCK SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1YR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, ALL STAKES SHALL BE REMOVED. DEGRADABLE FILTER SOCK MAY BE LEFT IN PLACE AND VEGETATED - THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT PRIOR TO SEEDING. THE MESH FROM ALL POLYPROPYLENE FILTER SOCKS SHALL BE REMOVED - THE MULCH SHALL BE SPREAD AS A SOIL SUPPLEMENT PRIOR TO SEEDING.

REPRODUCED FROM FILTREXX LOW IMPACT DESIGN MANUAL PAGE 324.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (Meters) *				
	8-IN (200-mm) Sediment Control	12-IN (300-mm) Sediment Control	18-IN (450-mm) Sediment Control	24-IN (600-mm) Sediment Control	32-IN (800-mm) Sediment Control
	6.5-IN (160-mm) **	9.5-IN (240-mm) **	14.5-IN (360-mm) **	19-IN (480-mm) **	26-IN (650-mm) **
2 (or less)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	200 (60)	250 (75)	300 (90)	400 (120)	500 (150)
15	140 (40)	170 (50)	200 (60)	325 (100)	450 (140)
20	100 (30)	125 (38)	140 (42)	260 (80)	400 (120)
25	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

* Based on a failure point of 36-IN (0.9-m) super silt fence (wire reinforced) at 1000-FT (303-m) of slope, watershed width equivalent to receiving length of sediment control device, 1-IN/24-HR (25-mm/24-HR) rain event.

** Effective height of Sediment Control after installation and with constant head from runoff as determined by Ohio State University.

RESTRICTIONS

- (1) COMPOST FILTER SOCK WILL NOT BE PLACED IN ANY AREA OF CONCENTRATED FLOWS SUCH AS SWALES, DITCHES, CHANNELS, ETC.
- (2) COMPOST FILTER SOCK WILL NOT BE USED IN AREA WHERE ROCK OR ROCKY SOILS PREVENT THE FULL AND UNIFORM ANCHORING OF THE COMPOST FILTER SOCK.
- (3) COMPOST FILTER SOCK WILL NOT BE PLACED ACROSS THE ENTRANCES TO PIPES OR CULVERTS AND WILL NOT BE WRAPPED AROUND THE PRINCIPAL SPILLWAY STRUCTURES OF SEDIMENT TRAPS OR BASINS.

INSTALLATION

- (1) COMPOST FILTER SOCK WILL BE INSTALLED WITH LITTLE, IF ANY DISTURBANCE TO THE DOWNSLOPE SIDE OF THE COMPOST FILTER SOCK.

COMPOST FILTER SOCK

NOT TO SCALE



PDC MOUNTAINEER

THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAKS BOULEVARD - BRIDGEPORT, WV 26330
PHONE: 304-624-4108
FAX: 304-624-7831

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